

SERIAL NO: 10/034,438
AMDT DATED APRIL 18, 2005
REPLY TO FINAL OFFICE ACTION OF FEB. 25, 2005

II. REMARKS

A. General Remarks

This paper is being filed with a Request for Continued Examination under 37 C.F.R. § 1.114 and is intended to be a complete response to the above-identified Final Office Action. Claims 18-32 were pending prior to this Reply. Claims 33-42 have been added. Accordingly, claims 18-42 are pending.

The total number of pending claims in the application is twenty-five, and the total number of independent claims is four. Applicant believes that the highest number of claims previously paid for is twenty-four with three of those being independent. Therefore, the Commissioner is hereby authorized to deduct \$250.00 from Deposit Account 501922/149-0055US for one additional dependent claim and one additional independent claim in accordance with 37 C.F.R. 1.16(c). If additional fees are required for any reason, however, the Commissioner is authorized to deduct the additional necessary charges from Deposit Account 501922/149-0055US.

B. Claim Rejections – 35 USC § 112

Claims 20-21 and 29-30 stand rejected under 35 U.S.C. 112, first paragraph.

In response, Applicant has amended claims 20-21 and 29-30 to define that a key range value is a contiguous range of rows as indicated by one key value and another key value, which is believed to address the Examiner's rejection. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection. Support for this amendment can be found in the originally filed specification at page 9, lines 1-3.

C. Claim Rejections – 35 USC § 102

Claims 18-19, 22, and 25-28 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by U.S. Patent 6,411,964 to Iyer et al. (hereinafter Iyer). Applicant respectfully traverses this rejection in so far as independent claims 18 and 28, as amended, are not anticipated by Iyer. For example, claim 18, as amended, recites:

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18. (Currently Amended) A database free space management method, comprising:
- identifying a first range of key values associated with a first set of rows *in a database file*;
 - assigning first values to each of a plurality of free space management parameters associated with the first range of key values;
 - identifying a second range of key values associated with a second set of rows *in the database file*;
 - assigning second values to each of a plurality of free space management parameters associated with the second range of key values, wherein *the second values differ from the first values by at least one free space management parameter value*;
 - managing free space associated with the first set of rows in accordance with the first values; and
 - managing free space associated with the second set of rows in accordance with the second values.

In claim 18, as amended, first and second key ranges are identified for first and second sets of rows in the same database file. First and second values are assigned to free space parameters for both key ranges. The second values differ from the first values by at least one free space management parameter value. The free space in the first rows associated with the second set of rows is managed in accordance with the first values, while the free space associated with the second set of rows in accordance with the second values. Thus, the management of free space in the first set of rows in the database file is different from the management of free space in the second set of rows in the same database file, because the values for the free space parameters are different for these first and second sets of rows.

Applicant has amended the recitation of "tablespace" in claims 18 and 28 to --database file-- to clarify the confusion between Applicant's invention and the disclosure of Iyer. Iyer is directed to providing in-place reorganization of a database, which Iyer discloses as a partitioned tablespace and a non-partitioned tablespace. Iyer states that "[p]artitions reside in different files; a non-partitioned table 108 space can reside in one file." *Iyer* at col. 6, lines 51-52. Applicant does not disagree with this characterization of partitioned and non-partitioned tablespaces.

With this understanding of how a partition resides in one file and how a non-partitioned tablespace resides in one file, *Iyer's disclosure is directed to distributing free space evenly in the same file* (e.g., a file for a partition of a partitioned tablespace or a file for a non-partitioned

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tablespace). *See e.g.*, Iyer at col. 3, lines 47-50 and col. 7, lines 25-27. Furthermore, Iyer discloses free space parameters for reorganization, which include “desired frequency of free pages” and “desired percent of free space per page.” *See e.g.*, Iyer at col. 17, lines 51-52. If free pages are distributed in one file for a partition of a tablespace or in one file for a non-partitioned tablespace according to a “desired frequency of free pages” or a “desired percent of free space per page,” then the free space in that one file will be evenly distributed, which is what Iyer is expressly directed to and which is not what Applicant has claimed.

In fact, Iyer describes uneven distribution of free space as a type of degradation that can cause poor performance. *See* Iyer at col. 7, lines 12-15. Reorganization in accordance with Iyer *is purposefully designed to remove such structural degradation such that free space is evenly distributed throughout a tablespace* (Iyer at col. 7, lines 24-27). Thus, Iyer teaches the use of free space parameters such as desired frequency of free pages and desired percent of free space per page to uniformly manage the free space in one file (e.g., in one partition of a partitioned tablespace or in an entire non-partitioned tablespace) (Iyer at col. 17, lines 49-60 and FIG. 11, element 1126).

In contrast, the claimed invention is directed to the ***non-uniform management of free space*** in one database file, which can be one partition of a partitioned tablespace or can be a non-partitioned tablespace. For example, independent claims 18 and 28, as amended, recite free space parameters associated with at least two sets of rows of the same database file. Further, independent claims 18 and 28 require at least one free space parameter value associated with each of the sets of rows to be different. Thus, ***free space management in accordance with the invention is, by definition, non-uniform in the same database file*** as the free space of at least two different portions of the same database file are treated differently.

At no time does Iyer teach that a file’s free space may be treated non-uniformly. At no time does Iyer even suggest that such an operation may be beneficial. In fact, Iyer *expressly* teaches that the non-uniform management of free space is a type of “degradation” that can lead to poor performance (see discussion above). Accordingly, not only does Iyer not teach the claimed invention, Iyer actually teaches away from the claimed invention.

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In light of the above amendments and remarks, claims 18-32 are believed to be clearly distinguished from Iyer. Accordingly, Assignee respectfully requests the Examiner's section 102 rejections be withdrawn and claims 18-32 be passed to allowance.

D. Comments Regarding New Claims 33-42

Newly added claims 33-42 are consonant with the invention elected in the restriction requirement of October 19, 2004. New claims 33-42 are fully supported by the written description as filed. For example, support for claims 33-34 can be found in the specification at page 10, lines 27-28. In addition, the general concept of non-uniform management of free space in a file is specifically highlighted in the specification at page 2, lines 20-29; page 3, lines 2-3; and the Abstract. A specific example of how the free space associated with different portions of a common file object (e.g., a table of a tablespace) is treated differently (non-uniformly) is discussed in the specification at pages 8, line 4 to page 10, line 25 and Figures 3a and 3b.

New claims 35-42 are believed to be patentable over Iyer. In particular, new independent claims 35 and 39 require that a first set of rows of a file object are designated with a first range of key values and require that a second set of rows of the same file object are designated with a second range of key values. Free space is non-uniformly distributed within the first and second sets of rows of the same file object by distributing free space differently for the first range of key values than for the second range of key values. At no time does Iyer teach that a file object's free space may be treated non-uniformly. At no time does Iyer even suggest that such an operation may be beneficial. In fact, Iyer *expressly* teaches that the non-uniform management of free space is a type of "degradation" that can lead to poor performance (see discussion above). Accordingly, not only does Iyer not teach the claimed invention, Iyer actually teaches away from the claimed invention.

E. Claim Rejections – 35 USC § 103

Claim 23 stands rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Iyer, and further in view of U.S. Patent 6,003,022 to Eberhard et al. (hereinafter Eberhard).

Applicant respectfully traverses the rejection of claim 23 as obvious in so far as claim 23 depends from amended claim 18, which is believed allowable for the reasons set forth above.

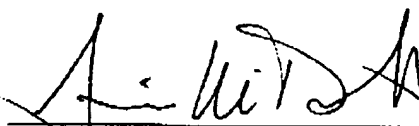
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Even if combining Iyer in view of Eberhand were appropriate, which Applicant does not concede, the combination fails to disclose all of the limitations of claim 18 from which claim 23 depends. Accordingly, Applicant respectfully request reconsideration and withdrawal of the rejection of claim 23.

CONCLUSION

Reconsideration of the pending claims (18-42), in light of the above remarks and amendments is respectfully requested. If, after considering this reply, the Examiner believes that a telephone conference would be beneficial towards advancing this case to allowance, the Examiner is strongly encouraged to contact the undersigned attorney at the number listed.

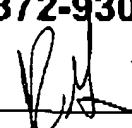
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